CLAIMS:

1. An X-ray CT system in which an X-ray detector having multiple channels is used to acquire projection information, which is provided by an X-ray beam having passed through a scan field, as a plurality of views from plural directions, and projection information detected on each of the channels is corrected in terms of the beam-hardening effect, comprising:

a correction coefficient producing device for acquiring projection information from a phantom disposed in the scan field, and calculating a correction coefficient, which is used for correction, from the projection information;

a correction coefficient modifying device for modifying a second correction coefficient, which said correction coefficient producing device calculates using projection information acquired from a second phantom larger than a first phantom, using a first correction coefficient which said correction coefficient producing device calculates using projection information acquired from said first phantom; and

a correcting device for correcting projection information, which is acquired from a subject positioned in the scan field, using the first correction coefficient and the corrected second correction coefficient.

2. An X-ray CT system according to Claim 1, wherein said correction coefficient producing device comprises:

a producing device for producing one sinogram using first projection information sampled in relation to all the views from projection information acquired from a phantom;

a beam-hardening correction device for correcting the first projection information in terms of the beam-hardening effect so as to produce second projection information;

a first fitting device for fitting a first function to the second projection information so as to

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produce third projection information; and

a second fitting device for fitting a second function to the third projection information values that are provided as functions having as independent variables the second projection information values sampled in relation to all the views and each of the channels of said X-ray detector.

3. An X-ray CT system according to Claim 1, wherein:

said X-ray detector is formed with a plurality of detection modules each assigned a predetermined number of channels; and

said correction coefficient modifying device separates the reflections of high-frequency components from correction coefficient data calculated using the second phantom so as to leave the dependencies on the detection characteristics of said detection modules, and synthesizes the correction coefficient data, from which the reflections of high-frequency components are separated, with the reflections of high-frequency components in correction coefficient data calculated using the first phantom.

4. An X-ray CT system according to Claim 1, wherein said first and second phantoms have circular sections, and the diameter of said second phantom is larger than the diameter of said first phantom.

5. An X-ray CT system according to Claim 3, wherein said detection modules are manufactured as united bodies in units of a channel.

6. An X-ray CT system according to Claim 1, wherein said X-ray detector is formed using a combination of a scintillator and a photodiode.

7. An X-ray CT system according to Claim 1, wherein said X-ray detector has an X-ray incidence surface curved like a cylindrical concave surface.

8. An X-ray CT system according to Claim 1, wherein said X-ray detector has a plurality of X-ray detection elements set in array in a direction in which X-rays spread in the form of a fan.

9. A beam-hardening post-processing method for X-ray CT systems according to which an X-ray detector having multiple channels is used to detect projection information, which is provided by an X-ray beam having passed through a scan field, as a plurality of views from plural direction, and projection information detected on each channel is corrected in terms of the beam-hardening effect, comprising:

an acquiring step of scanning a first phantom and a second phantom, which is larger than said first phantom, disposed between an X-ray tube and said X-ray detector, and acquiring projection information as a plurality of views from plural directions using said X-ray detector having multiple channels;

a producing step of producing first and second correction coefficients, which are used for correction, from projection information acquired from said first and second phantoms;

a modifying step of modifying the second correction coefficient using the first correction coefficient; and

a correcting step of correcting projection information, which is acquired from a subject positioned in the scan field, using the first correction coefficient and the corrected second correction coefficient.

10. A beam-hardening post-processing method for X-ray CT systems according to

Claim 9, wherein:

at said acquiring step, first projection information is sampled from projection information acquired from said first and second phantoms in relation to all the views in order to produce a plurality of sinograms;

at said producing step, the first projection information is corrected in terms of the beam-hardening effect in order to produce second projection information;

a first function is fitted to the second projection information in order to produce third projection information; and

a second function is fitted to the third projection information values that are provided as functions having as independent variables the second projection information values sampled in relation to all the views and each of the channels of said X-ray detector in order to calculate the first and second correction coefficients.

11.   A beam-hardening post-processing method for X-ray CT systems according to Claim 9, wherein:

said X-ray detector is formed with a plurality of detection modules each assigned a predetermined number of channels; and

at said modifying step, the reflections of high-frequency components are separated from correction coefficient data calculated using said second phantom in order to leave the dependencies on the detection characteristics of said detection modules, and the correction coefficient data from which the reflections of high-frequency components are separated is synthesized with the reflections of high-frequency components in correction coefficient data calculated using said first phantom.

12.   A beam-hardening post-processing method for X-ray CT systems according to

Claim 9, wherein phantoms having circular sections are adopted as said first and second phantoms, and the diameter of said second phantom is larger than the diameter of said first phantom.

13.   A beam-hardening post-processing method for X-ray CT systems according to Claim 11, wherein said detection modules are manufactured as united bodies in units of a channel.

14.   A beam-hardening post-processing method for X-ray CT systems according to Claim 9, wherein said X-ray detector is formed using a combination of a scintillator and a photodiode.

15.   A beam-hardening post-processing method for X-ray CT systems according to Claim 9, wherein said X-ray detector has an X-ray incidence surface curved like a cylindrical concave surface.

16.   A beam-hardening post-processing method for X-ray CT systems according to Claim 9, wherein said X-ray detector has a plurality of X-ray detection elements set in array in a direction in which X-rays spread in the form of a fan.